

**NATIONAL UNIVERSITY OF LIFE AND ENVIRONMENTAL
SCIENCES OF UKRAINE**

Department of Agroecology and Environmental Control

APPROVED

Faculty of Plant Protection,
Biotechnology and Ecology

“21” __05__2025__

CURRICULUM OF ACADEMIC DISCIPLINE

«Protected Area Management »

Area of knowledge 10 Natural Sciences

Specialty 101 Ecology

Academic programme Ecology

Faculty of Plant Protection, Biotechnology and Ecology

Developed by: Associate Professor, PhD in Agricultural Sciences **L. Vagaliuk**

Kyiv – 2025

Description of the discipline «Protected Area Management»

The discipline “**Protected Area Management**” provides students with comprehensive knowledge and practical skills in the organization, protection, and sustainable management of natural reserves and other types of protected areas. The course examines the legal, ecological, and socio-economic foundations of protected area systems, their role in biodiversity conservation, and ecosystem services.

Students study the principles of nature conservation, methods of monitoring and managing protected territories, and the development of management plans to ensure ecological integrity and sustainable use of natural resources. Emphasis is placed on international and national frameworks, including IUCN categories, national laws, and global conservation strategies.

The discipline also covers practical tools such as GIS mapping, environmental assessment, and stakeholder engagement, preparing students for careers in environmental protection, reserve administration, and policy development.

Field of knowledge, specialty, educational program, educational degree		
Educational degree	Bachelor	
Specialty	101”Ecology”	
Educational program	Ecology	
Characteristics of the discipline		
Kind of the discipline	Compulsory	
Total number of hours	120	
Credit amount ECTS	4	
Number of content modules	2	
Course project (work) for availability)	-	
Form of control	Exam	
Indicators of academic discipline for full-time and part-time forms of education		
	Full-time	Part-time
Year of preparation (course)	2	3
Semester	4	5
Lectures	30	2
Practical, seminar classes	30	-
Laboratory classes	-	-
Individual work	60	100
Number of weekly classrooms hours for full-time study	4	

1. Aim, competences and expected learning outcomes of the discipline

The purpose of the course “*Protected Area Management*” is to introduce students to the essential principles and practices of establishing, protecting, and managing natural protected areas to conserve biodiversity and ecosystem services. The course provides comprehensive knowledge about legal frameworks, ecological monitoring, and sustainable management strategies. It equips students with practical skills necessary for evaluating environmental conditions, assessing anthropogenic impacts, and designing management plans that support conservation objectives while balancing socio-economic needs.

The main objectives of the course are to:

- Explore fundamental concepts of protected area classification, governance, and conservation biology;

- Understand the ecological significance of protected areas within national and global contexts;
- Analyze threats to biodiversity and natural habitats caused by human activities;
- Study the legal, institutional, and policy frameworks governing protected areas;
- Develop skills in ecological monitoring, assessment, and management planning;
- Promote community engagement and stakeholder collaboration in conservation efforts.

Upon successful completion of the course, students will be able to demonstrate knowledge of:

- The classification and types of protected areas and their roles in biodiversity conservation;
- International conventions, national laws, and policies related to protected area management;
- Methods for ecological monitoring and assessment of ecosystems under protection;
- The impact of anthropogenic pressures on protected ecosystems and mitigation strategies;
- Principles of sustainable use and restoration of natural habitats;
- Approaches to environmental education and awareness within protected areas;
- The socio-economic importance of protected areas and integration with local communities.

Students will acquire the following practical skills:

- Applying ecological research methods for monitoring and managing protected areas;
- Using geographic information systems (GIS) and remote sensing tools for spatial analysis;
- Developing management and conservation plans based on ecological data;
- Assessing anthropogenic impacts and proposing mitigation measures;
- Conducting field surveys to inventory biodiversity and habitat conditions;
- Engaging with stakeholders and conducting educational outreach;
- Evaluating the effectiveness of conservation interventions;
- Preparing scientific reports and recommendations for policy and management.

Competences acquired:

Acquisition of Competencies (*According to the approved Educational and Professional Program for the specialty 101 "Ecology"*)

1. Integral Competence (IC): The ability to solve complex specialized tasks and address practical problems in the field of ecology, environmental protection, and sustainable nature management, which involves the application of fundamental theories and methods of environmental sciences, characterized by complexity and uncertainty of conditions.

2. General Competencies (GC):

Ability to conduct research at the appropriate level.

GC1. Knowledge and understanding of the subject area and professional activity.

GC15. Knowledge and understanding of the theoretical foundations of ecology, environmental protection, and sustainable natural resource management.

GC22. Ability to justify the necessity of and develop measures aimed at preserving landscape and biological diversity and forming an ecological network.

GC26. Ability to master international and domestic experience in addressing regional and transboundary environmental issues.

GC27. Ability to participate in the management of environmental protection activities and/or ecological projects.

Program Learning Outcomes (PLO):

PLO16. To select the optimal strategy for conducting public hearings on issues and the formation of protected areas and ecological networks.

PLO17. To be aware of the responsibility for the effectiveness and outcomes of implementing comprehensive environmental protection measures.

PLO23. Demonstrate skills in implementing environmental protection measures and projects.

2. Programme and structure of the discipline

Names of content modules and topics	Number of hours									
	full-time					part-time				
	total	including				total	including			
		l.	p.	lab.	ind.		l.	p.	lab.	ind.
1	2	3	4	5	6	7	8	9	10	11
Module 1. Fundamentals of Nature Reserve System and Legal Framework										
Lecture 1. Introduction: Subject, Functions, and Tasks of Nature Reserves	7	2	2	-	3	14	2	-	2	10
Lecture 2. Historical Development and Environmental Policy of Nature Reserves –	7	2	2	-	3	12		-	2	10
Lecture 3. Scientific and Methodological Foundations of Nature Reserves in Ukraine	7	2	2	-	3	14	2	-	2	10
Lecture 4. International Conventions and Legal Framework in Nature Protection	7	2	2	-	3	14	2	-	2	10
Lecture 5. Classification of Protected Areas and Objects: Natural and Artificially Created	7	2	2	-	3	10		-		10
Lecture 6. Legal and Institutional Framework for Nature Reserve Management in Ukraine	9	2	2		5					
Lecture 7. Current Challenges in Nature Reserve Management	14	2	2		10					
Total for the module 1	58	14	14	-	30	64	6	-	8	50
Module 2. Management, Typology, and Restoration of Protected Areas										
Lecture 8. Formation of a Network of Protected Areas	7	2	2	-	3	14	2	-	2	10
Lecture 9. Red Data Books in the System of Biodiversity Conservation	7	2	2	-	3	12		-	2	10
Lecture 10. Nature and Biosphere Reserves	7	2	2	-	3	10				10
Lecture 11. Types of Protected Areas: Parks, Reserves, Monuments	7	2	2	-	3	10				10
Lecture 12. Artificially Created Territories and Objects of the NRF of Ukraine	7	2	2	-	3	10				10

Lecture 13. Community Involvement and Education in Nature Conservation	9	2	2		5					
Lecture 14. Ecological Restoration in Protected Areas	9	2	2		5					
Lecture 15. Monitoring and Evaluation of Protected Areas Effectiveness –	9	2	2		5					
Total for the module 2	62	16	16	-	30	56	2	-	4	50
Total	120	30	30	-	60	120	8	-	12	100

3. Topics of lectures

No.	Topic	Hours
1	Introduction: Subject, Functions, and Tasks of Nature Reserves	2
2	Historical Development and Environmental Policy of Nature Reserves	2
3	Scientific and Methodological Foundations of Nature Reserves in Ukraine	2
4	International Conventions and Legal Framework in Nature Protection	2
5	Classification of Protected Areas and Objects: Natural and Artificially Created	2
6	Legal and Institutional Framework for Nature Reserve Management in Ukraine	2
7	Current Challenges in Nature Reserve Management	2
8	Formation of a Network of Protected Areas	2
9	Red Data Books in the System of Biodiversity Conservation	2
10	Nature and Biosphere Reserves	2
11	Types of Protected Areas: Parks, Reserves, Monuments	2
12	Artificially Created Territories and Objects of the NRF of Ukraine	2
13	Community Involvement and Education in Nature Conservation	2
14	Ecological Restoration in Protected Areas	2
15	Monitoring and Evaluation of Protected Areas Effectiveness	2
	Total	30

4. Topic of laboratory (practical, seminars) classes

№	Topics	Number hours
1	Characterization of forest plantations in the territory of the projected protected area	2
2	Phenological observations on the territory of the projected object	2
3	Vertebrate fauna (impacts of activities) on the territory of the projected protected area	2
4	Inventory of insect fauna on the territory of the projected or existing protected area	2
5	Determination of the protection status of flora representatives of an existing protected area	2
6	Objects of the Nature Reserve Fund of local importance of the settlement	2
7	Objects of the Nature Reserve Fund of national importance of the settlement	2
8	Determination of the protection status of flora representatives of the existing object of the Nature Reserve Fund Practical work	2
9	Determination of the conservation status of fauna representatives of the existing object of the Nature Reserve Fund	2
10	Analysis of anthropogenic threats to the protected area	2
11	Assessment of ecosystem services in a protected area	2

12	Mapping the protected area using topographic maps	2
13	Evaluation of ecosystem condition using bioindicators	2
14	Analysis of legislative base for the selected PZF object	2
15	SWOT analysis for management of a selected protected area	2
	Total	30

5. Topics of self-study

No.	Topic	Number hours
1.	Levels of Biodiversity: Genetic, Species, and Ecosystem	4
2.	Causes of Biodiversity Loss in the Modern World	4
3.	Impact of Climate Change on Biodiversity: Global and Local Examples	5
4.	The Role of Protected Areas in Biodiversity Conservation	4
5.	Invasive Species: A Threat to Native Ecosystems	4
6.	The Red Data Book of Ukraine: Structure, Criteria, and Examples of Protected Species	4
7.	Ecosystem Services as an Argument for Biodiversity Conservation	3
8.	Urbanization and Its Impact on Urban and Suburban Biota	3
9.	The Convention on Biological Diversity: Goals and Implementation in Ukraine	3
10.	The Ecological Network of Ukraine as a Tool for Nature Protection	3
11.	Modern Methods for Biodiversity Monitoring	4
12.	The Role of Civil Society Organizations in Biodiversity Conservation	3
13.	Restoration of Natural Ecosystems: Principles and Practical Examples	4
14.	Flagship, Indicator, and Keystone Species: Their Importance for Nature Conservation	3
15.	Biodiversity of the Carpathian Region: Uniqueness and Conservation Measures	3
	Total	60

6. Methods of assessing expected learning outcomes:

- Oral or written questioning
- Exam
- Module tests
- Essays, presentations
- Calculations (individual assignments)
- Defense of practical works

7. Teaching methods:

- Verbal method (lecture, discussion, interview, etc.)
- Practical method (laboratory and practical classes)
- Visual method (illustration method, demonstration method)
- Working with educational and methodological literature (note-taking, summarizing, annotating, reviewing, writing essays)
- Video method (distance learning, multimedia, web-based formats, etc.)
- Independent work (completion of assignments)
- Individual research work of higher education students

8. Results assessment.

The student's knowledge is assessed by means of a 100-point scale converted into the national grades according to the "Exam and Credit Regulations at NULES of Ukraine" in force.

8.1. Distribution of points by types of educational activities

Educational activity	Results	Assessment
Module 1. Module 1. Fundamentals of Nature Reserve System and Legal Framework		
Practical work № 1. Characterization of forest plantations in the territory of the projected protected area	To study the composition, structure, and ecological characteristics of forest plantations located within the projected protected area. To analyze their role in biodiversity conservation and assess their suitability for inclusion in the Nature Reserve Fund.	10
Practical work № 2. Phenological observations on the territory of the projected object	To carry out phenological observations of plant species in the territory of the projected protected area in order to evaluate seasonal biological changes and their ecological significance for conservation planning.	10
Practical work № 3. Vertebrate fauna (impacts of activities) on the territory of the projected protected area	To assess the composition of vertebrate fauna in the projected protected area and analyze the influence of human activities on their populations and habitats.	10
Practical work № 4. Inventory of insect fauna on the territory of the projected or existing protected area	To study species diversity, abundance, and ecological roles of insects in a protected area, and to understand their significance as indicators of ecosystem health.	10
Practical work № 5. Determination of the protection status of flora representatives of an existing protected area	To identify and assess the protection status of plant species in a designated protected area and to develop skills in using relevant conservation documents and classification systems.	10
Practical work № 6. Objects of the Nature Reserve Fund of local importance of the settlement	To study the types, functions, and legal status of the Nature Reserve Fund (NRF) objects of local importance within a settlement and to assess their ecological significance.	10
Practical work № 7. Objects of the Nature Reserve Fund of national importance of the settlement	To examine the structure, designation, and role of Nature Reserve Fund (NRF) objects of national importance within the settlement, and to analyze their contribution to biodiversity conservation at the national level.	10
Module control work 1.		30
Total for module 1	PLO 16, PLO 17.	100
Module 2. Management, Typology, and Restoration of Protected Areas		
Practical work № 8. Determination of the protection status of flora representatives of the existing object of the Nature Reserve Fund Practical work	To study and identify plant species within an existing object of the Nature Reserve Fund (NRF) and determine their protection status based on national and international conservation lists.	10
Practical work № 9. Determination of the conservation status of fauna representatives of the existing object of the Nature Reserve Fund	To conduct a field-based assessment of animal species present in a selected Nature Reserve Fund (NRF) object and determine their conservation status using national and international classification systems.	10
Practical work №10. Analysis of anthropogenic threats to the protected area	To identify, analyze, and assess the current and potential anthropogenic threats affecting a selected protected area, and to evaluate their impacts on ecosystem integrity and biodiversity.	10

Practical work №11. Assessment of ecosystem services in a protected area	To understand and evaluate the various ecosystem services provided by a selected protected area, including their ecological, economic, and social benefits, and to analyze their role in supporting biodiversity and human well-being.	10
Practical work № 12. Mapping the protected area using topographic maps	To develop skills in using topographic maps for identifying, delineating, and analyzing the spatial boundaries and features of protected areas, enabling effective planning and management of these territories.	10
Practical work № 13. Evaluation of ecosystem condition using bioindicators	To learn how to assess the health and condition of ecosystems by identifying and analyzing bioindicator species, which reflect environmental quality and ecological changes.	10
Practical work №14. Analysis of legislative base for the selected PZF object	To develop skills in reviewing and analyzing national and regional legal frameworks, regulations, and policies relevant to the management and protection of a selected protected area.	5
Practical work №15. SWOT analysis for management of a selected protected area	To develop the ability to conduct a comprehensive SWOT (Strengths, Weaknesses, Opportunities, Threats) analysis to evaluate the management effectiveness and strategic position of a selected protected area.	5
Module control work 2.		
Total for module 2	PLO 16, PLO17, PLO23	100
Class work	$(M1 + M2)/2 \cdot 0,7 \leq 70$	
Exam/credit	30	
Total for year	$(\text{Class work} + \text{exam}) \leq 100$	

8.2. Scale for assessing student's knowledge

Student's rating, points	National grading (exam/credits)
90-100	excellent
74-89	good
60-73	satisfactory
0-59	unsatisfactory

8.3. Assessment policy

Deadlines and exam retaking rules	<i>EXAMPLE:</i> works that are submitted late without valid reasons will be assessed with a lower grade. Module tests may be retaken with the permission of the lecturer if there are valid reasons (e.g. a sick leave).
Academic integrity rules	<i>EXAMPLE:</i> cheating during tests and exams is prohibited (including using mobile devices). Term papers and essays must have correct references to the literature used
Attendance rules	<i>EXAMPLE:</i> Attendance is compulsory. For good reasons (e.g. illness, international internship), training can take place individually (online by the faculty dean's consent)

9. Teaching and learning aids:

- e-learning course of the discipline
(<https://elearn.nubip.edu.ua/course/view.php?id=2079>);

- references to digital educational resources;
- textbooks, manuals, tutorials;
- guidelines for studying a discipline by full-time and part-time students;
- internship programmes of the discipline (if included in the curriculum)

1. Nature reserve: tutorial / L. Vagaliuk, M. Lisovyy. – Kyiv, 2024. – 256 p.

10. Recommended sources of information

1. Buryak, P. V. (2020). Nature Reserve Management in Ukraine: Current Status and Development Prospects. *Ecology and Nature Management*, 45(2), 15-28.
2. Kovalchuk, V. I., & Melnyk, O. S. (2019). Legal Support for the Protection of the Nature Reserve Fund in Ukraine. *Law and Ecology*, 12(1), 34-42.
3. Savchenko, T. M. (2021). Environmental Monitoring of Nature Reserve Fund Objects: Methodology and Practice. *Biodiversity and Nature Conservation*, 18(3), 47-59.
4. Petrenko, I. Yu. (2022). Biodiversity Conservation Management in Nature Reserve Areas of Ukraine. *Ecological Bulletin of Ukraine*, 30(1), 8-17.
5. Chernenko, S. V., & Lytvynenko, O. P. (2020). Problems of Sustainable Development of Nature Reserve Territories in Ukraine. *Environmental Safety Bulletin*, 7(4), 73-81.
6. Ivanenko, M. V. (2019). Methodological Approaches to the Formation of Nature Reserve Networks. *Scientific Papers Collection*, 56, 112-119.
7. Stetsenko, L. M. (2021). Use of Bioindicators in the Assessment of Ecosystem Condition in the Nature Reserve Fund. *Ecological Sciences*, 24(2), 102-110.
8. Hryhorenko, V. I. (2020). Legal Regulation of Nature Protection under Contemporary Challenges. *Legal Bulletin of Ukraine*, 15(3), 60-68.
9. Kovalenko, O. H., & Smirnova, N. V. (2019). Social Participation in the Conservation of Nature Reserve Territories. *Ecological Journal*, 14(1), 22-29.
10. Demchenko, V. P. (2022). Ecological Restoration of Nature Reserve Territories: Theory and Practice. *Natural Sciences Bulletin*, 39(1), 88-96.

National Regulatory Documents of Ukraine

1. Law of Ukraine "On the Nature Reserve Fund of Ukraine," No. 2456-XII, June 16, 1992, as amended. Verkhovna Rada of Ukraine. Retrieved from <https://zakon.rada.gov.ua/>
2. Law of Ukraine "On Environmental Protection," No. 1264-XII, June 25, 1991. Verkhovna Rada of Ukraine. Retrieved from <https://zakon.rada.gov.ua/>
3. Law of Ukraine "On Environmental Impact Assessment," No. 2059-VIII, May 23, 2017. Verkhovna Rada of Ukraine. Retrieved from <https://zakon.rada.gov.ua/>
4. Law of Ukraine "On the Ecological Network of Ukraine," No. 1861-VIII, December 20, 2018. Verkhovna Rada of Ukraine. Retrieved from <https://zakon.rada.gov.ua/>
5. Resolution of the Cabinet of Ministers of Ukraine "On Approval of the Procedure for the Establishment and Functioning of the Nature Reserve Fund of Ukraine," No. 1087, November 26, 2008. Verkhovna Rada of Ukraine. Retrieved from <https://zakon.rada.gov.ua/>
6. Order of the Ministry of Environmental Protection and Natural Resources of Ukraine No. XXX (specify number and date), regarding the protection and management of protected areas. Ministry of Environmental Protection of Ukraine. Retrieved from <https://mepr.gov.ua/>